RCRA SAMPLING INVESTIGATION

AES Puerto Rico, LP
Guayama, Puerto Rico

PRR000011965

March 13, 2012

Participating Personnel:

U.S. Environmental Protection Agency
Robert Morrell, Geologist
Thuan Tran, Environmental Scientist
Leonard Grossman, Enforcement Officer

Puerto Rico Environmental Quality Board
Frances Segarra, Sr. Environmental Quality Specialist
Gloria M. Toro, Hazardous Waste Permits Division

AES Puerto Rico, LP
Hector Avila, Environmental Coordinator
Jon Reimann, Manager – Environmental Affairs

Report Prepared by:

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Robert Morrell, Geologist
Monitoring Operations Section

Approved for the Director by:

John S. Kushwara 8/14/12
John S. Kushwara, Chief
Monitoring and Assessment Branch

AES Puerto Rico, LP **PRR000011965**
Guayama, Puerto Rico **March 13, 2012**

RCRA Sampling Investigation

Objective

A RCRA Sampling Investigation was conducted at AES Puerto Rico LP on March 13, 2012. The facility is a coal-fired electrical power plant located on Route 3 in Guayama, Puerto Rico. During the combustion of coal, fly ash and bottom ash are generated. AES Puerto Rico is currently exploring beneficial uses for its coal combustion products. Fly ash and bottom ash are mixed with water in the pug mill to produce a manufactured aggregate known as Agremax. This manufactured aggregate gains strength during the curing process, similar to concrete. AES Puerto Rico intends to market the Agremax for applications such as road beds, soil amendments, asphalt, and concrete. EPA is concerned that unrestricted use of the Agremax could potentially result in the leaching of toxic constituents into the environment. The purpose of this sampling survey was to collect a representative composite sample from the pile of manufactured aggregate that is being stored at the Guayama facility. This sample will be analyzed using the Leaching Environmental Assessment Framework (LEAF), which consists of four leaching methods that are designed to characterize materials intended for beneficial reuse. The analytical results will provide a leaching assessment of the manufactured aggregate known as Agremax. Analytical results will also be used to support potential violations of the Resource Conservation and Recovery Act (RCRA).

Survey Participants

Puerto Rico Environmental Quality Board
Frances Segarra, Senior Environmental Quality Specialist
Mariangely Santiago
Gloria M. Toro, Hazardous Waste Permits Division
Josefina Juarez, Hazardous Waste Compliance

AES Puerto Rico, LP
Ramiro Rivera, Engineering Manager
Hector Avila, Environmental Coordinator
Jon Reimann, Manager – Environmental Affairs
Ron Rodrique, Assistant Plant Manager
Manuel Mata, Plant Manager
Carlos Gonzalez, Safety Leader
Eitel Figueroa, CCP Project Manager
Russell Stapp, AES North America
Omar Perez, Puerto Rico Test and Services

U.S. Environmental Protection Agency
Leonard Grossman, Enforcement Officer
Thuan Tran, Environmental Scientist
Robert Morrell, Geologist

Facility Description

AES Puerto Rico is located on Route 3 in Guayama, Puerto Rico. The facility is a coal-fired electrical power plant. Low-sulfur Colombian coal is delivered to the facility by barge. Fly ash and bottom ash are generated during the coal combustion process. The fly ash and bottom ash are conveyed to the pug mill, where water is added to the mixture. After mixing, the manufactured aggregate mix is conveyed to a pile in the staging area. After 10-14 days of curing, the manufactured aggregate (Agremax) is ready for use.

EPA Sampling Activities

A composite sample of the manufactured aggregate was collected from the final product pile. The composite sample consisted of twenty grab samples from randomly-selected locations throughout the pile. At each location, four scoops of manufactured aggregate were placed into each 5-gallon composite sample container using a polypropylene scoop. Two 5-gallon plastic containers were filled for the EPA composite sample. Two 5-gallon plastic containers were also filled for the split sample provided for AES Puerto Rico. The manufactured aggregate in the composite sample containers was mixed with a polypropylene scoop during the sample collection activities. After the composite sample was collected, the lids to the containers were sealed. The EPA sample containers were placed in coolers and shipped overnight to the U.S. EPA RTP Laboratory in Durham, North Carolina, for the LEAF analysis.

Analytical Results

The laboratory data generated by the U.S. EPA RTP Laboratory will be submitted under separate cover to the RCRA Compliance Branch.

Findings

The analytical results will be used by the RCRA Compliance Branch to assess the leaching potential of the manufactured aggregate known as Agremax. In addition, the analytical results will be used to determine compliance with regulations pertaining to RCRA.

Attachments

Photographs (#1 - #2)
Chain of Custody / Field Data Form
Receipt for Samples

PHOTO LOG

Photo #1: View of the manufactured aggregate pile where the composite sample was collected.

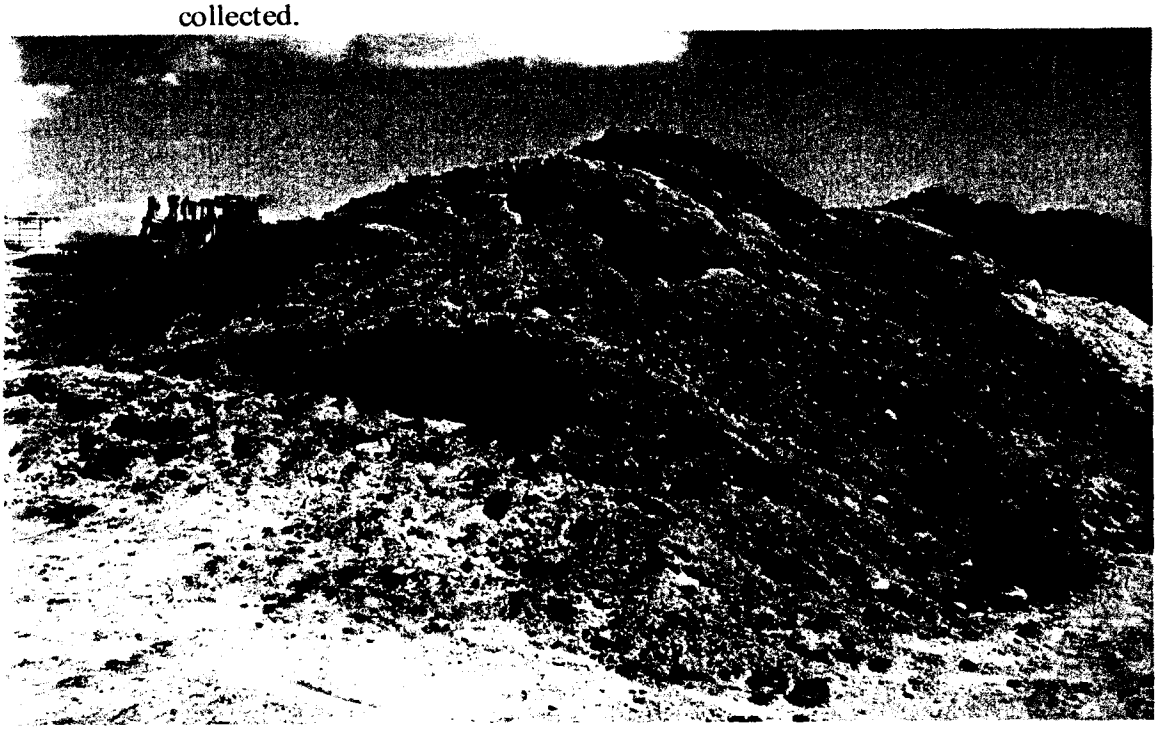

Photo #2: Another view of the manufactured aggregate pile.

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US EPA REGION 2 LABORATORY
CHAIN OF CUSTODY/ FIELD DATA FORM

SURVEY NAME & LOCALITY: AES Guayama - Guayama, P.R.

PROJECT LEADER: Bob Morrell

PROGRAM: SF ☐ : SITE ID ____ OPERABLE UNIT ____ PROGRAM RESULTS CODE ____

Decision		RCRA ☑	RCRA ENF ☐	NPDES ☐	SDWA ☐	AM ☐	CAA ☐	TSCA ☐	OD ☐	FIFRA ☐	CRIMINAL ENF ☐
Unit Code	Y206	D210	D307	B304	C215	B224	A305	L306	B253		

Permit #:

LAB ID/ FIELD ID	# OF CONTERS	MATRIX	CHECK IF SPLIT SAMPLE	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS,	Res CL Checked	Preservative (circle)	Collection Time (24hr clock) Begin	End	Collection Date mm/dd/yy
Manufactured Aggregate composite	2	J	☑	2 5-gallon plastic buckets for LEAF	☐	0 1 2 3 4 5 6 7 8 9 10	1145	1245	03/13/12
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			

COMMENTS & SPECIAL REQUIREMENTS:

Preservative Added & Checked
0=ice
1=H2SO4 pH<2
2=HNO3 pH<2
3=HCl pH<2
4=Na2S2O3
5=NaOH pH>9
6=Ascorbic Acid
7=FAS
8=ZnAc
9=NaOH pH>12
10=NH4Cl

Matrix:
A=aqueous
B=aqueous (chlorinated)
C=soil
D=sediment
E=sludge
F=multiphasic
G=solvent
H=biota
I=oil
J=other

Survey Complete? Y ☑ N ☐

		Time	Date
	Person Assuming Responsibility for Sample(s): Robert A. Morrell Jr.	1245	3/13/12
Relinquished By: Robert A. Morrell Jr.	Received By:		
Relinquished By:	Received By:		
Relinquished By:	Received By:		

revised 10/25/2004

US EPA REGION 2 LABORATORY

~~CHAIN OF CUSTODY/ FIELD DATA FORM~~
Receipt for Samples

SURVEY NAME & LOCALITY AES Guayama - Guayama, PR   PROJECT LEADER Bob Morrell

PROGRAM: SF ☐ :   SITE ID /   OPERABLE UNIT ______   PROGRAM RESULTS CODE ______

Decision Unit Code	RCRA ☐	RCRA ENF ☐	NPDES ☐	SDWA ☐	AM ☐	CAA ☐	TSCA ☐	OD ☐	FIFRA ☐	CRIMINAL ENF ☐
Y206	D210	D307	B304	C215	B224	A305	~~L306~~	B253		

Permit #:

LAB ID/ FIELD ID	# OF CONTERS	MATRIX	CHECK IF SPLIT SAMPLE	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS,	Res CL Checked	Preservative (circle)	Collection Time (24hr clock) Begin	End	Collection Date mm/dd/yy
Manufactured Aggregate - composite	2	J	☑	2 5-gallon plastic buckets for LEAF	☐	(0) 1 2 3 4 5 6 7 8 9 10	1145	1245	03/13/12
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			
			☐		☐	0 1 2 3 4 5 6 7 8 9 10			

COMMENTS & SPECIAL REQUIREMENTS:

Preservative Added & Checked

0=ice	7=FAS
1=H2SO4 pH<2	8=ZnAc
2=HNO3 pH<2	9=NaOH pH>12
3=HCl pH<2	10=NH4Cl
4=Na2S2O3	
5=NaOH pH>9	
6=Ascorbic Acid	

Matrix:

A=aqueous	F=multiphasic
B=aqueous (chlorinated)	G=solvent
C=soil	H=biota
D=sediment	I=oil
E=sludge	J=other

Survey Complete? Y ☑ N ☐

	Person Assuming Responsibility for Sample(s):	Time	Date
Relinquished By:	Received By: [signature]		
Relinquished By:	Received By:		
Relinquished By:	Received By:		

revised 10/25/2004